

# A guide to the Queensland Marine Aquarium Fish Fishery and the Queensland Coral Fishery

On 26 March 2009, the Department of Primary Industries and Fisheries was amalgamated with other government departments to form the Department of Employment, Economic Development and Innovation.

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## Purpose

This guide has been compiled for the information of the general public and commercial operators in the fisheries. It describes the commercial fisheries, how they operate and the current regulations that ensure the fisheries remain sustainable.

## Introduction

A wide variety of marine fish, invertebrates and corals are collected worldwide for the aquarium trade and ornamental markets. Indonesia and the Philippines supply around two-thirds of the market. The remainder is sourced from countries including Brazil, Fiji, Hawaii, the Maldives, Puerto Rico, Sri Lanka, Thailand, Vietnam and Australia.

In Australia, most specimens for live aquarium display are sourced from the waters of the Great Barrier Reef—a World Heritage Area of international significance for biodiversity, conservation and a range of human-use values.



In Queensland, two small but valuable fisheries exist to supply the marine aquarium and ornamental trade. The Marine Aquarium Fish Fishery (MAFF) and the Queensland Coral Fishery (QCF) operate primarily on the Great Barrier Reef under a suite of conditions specifically designed to ensure a sustainable resource and a viable industry into the future.

# Marine Aquarium Fish Fishery (MAFF)

The MAFF operates along Queensland's east coast, targeting fish and invertebrate species for live aquarium display purposes.



## Methods

Marine aquarium fish and invertebrates are collected using hand-held fishing gear, including fishing lines, small nets and herding devices.

Divers in the fishery use scuba or surface-supplied air from hookah (hose) apparatus. These technologies allow MAFF fishers to access a range of depths and environments, helping reduce the level of interaction between the MAFF and other uses of the reef (e.g. tourism activities).

The MAFF **does not use any chemicals** to take fish.

## Target species, handling and market demand

The popularity of mini-reef displays drives trade of an increasingly diverse range of live marine animals. In addition to an extensive range of fish species, invertebrates (such as coral shrimp, sea cucumbers, molluscs and sponges) are also collected.

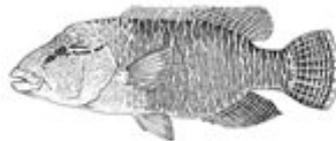
As market demand is for healthy, attractive, live specimens, collectors select and handle fish very carefully. They must ensure that fish do not become vulnerable to disease or death due to stress or physical damage. For certain species the market also demands specific sizes of fish, which results in other size classes being left in the environment to grow and breed.

A small sector of the MAFF industry supplies large local and international public aquaria for visitor education purposes. Public aquaria around the world receive hundreds of millions of visitors per year, providing enormous opportunities for public education and conservation awareness. A limited number of permits exist to allow adequately equipped and experienced MAFF operators to collect otherwise non-permitted fish and/or use non-prescribed fishing gear to take fish of educational value for supply to public aquaria. A range of collecting and reporting conditions apply.

## Key management arrangements

Queensland Primary Industries and Fisheries (QPIF), part of the Department of Employment, Economic Development and Innovation, has a number of regulations in place for the MAFF under the Fisheries Regulation 2008, the Limited Entry Policy and licence conditions, including:

1. limited licences (45 with 'A1' symbol; four with 'A2' symbol)
2. limits of two boats and three collectors in use at a time under a licence
3. gear restrictions
  - fishing lines (single, barbless hooks only)
  - cast nets
  - scoop nets
  - seine/barrier nets
  - herding devices (e.g. small rods)
  - scuba and hookah gear (commercial fishery only)
4. limited catch under licences with the 'A2' fishery symbol
  - 10 fish in possession, with no more than two fish of any species
5. no-take marine/tidal species (all Queensland commercial fisheries)
  - barramundi cod<sup>1</sup>
  - Chinaman fish
  - humphead Maori wrasse
  - paddletail
  - potato cod
  - Queensland grouper
  - red bass
  - billfish
  - northern and southern bluefin tuna
  - grey nurse shark
  - sawfish
  - spartooth shark
  - whale shark
  - great white shark
  - black teatfish (a sea cucumber)
  - clams (Tridacnidae)
  - helmet shell and trumpet shell



6. additional no-take species for MAFF
  - barramundi<sup>1</sup>
  - commercial sea cucumber species
  - coral, star sand or shell grit
  - oyster
  - pearl oyster
  - trochus



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<sup>1</sup> specimens can be purchased from aquaculture facilities for display in aquaria

7. size limits for certain species of:

- cods and groupers
- coral trout
- emperors
- tropical snappers and seaperches
- wrasses
- inshore and pelagic finfish
- tropical rock lobster
- crabs and bugs

For up to date details of size limits, visit the Office of the Queensland Parliamentary Council website at [www.legislation.qld.gov.au/OQPChome.htm](http://www.legislation.qld.gov.au/OQPChome.htm). Then follow link to 'Acts, SL as in force' and search under the letter 'F' for 'Fisheries Regulation 2008'.

8. seasonal closures for certain species

- coral reef fin fish in certain waters north of latitude 24°50' S. Two annual, five-day closures apply around the new moon periods in October and November of each year (consult the Fisheries Regulation 2008 for closure dates)
- tropical rock lobster from 1 October to 31 January (inclusive) each year



9. special management areas with limited access, introduced to control effort in centres with the potential for heavy localised fishing (areas and boundaries are specified in the Fisheries Regulation 2008)

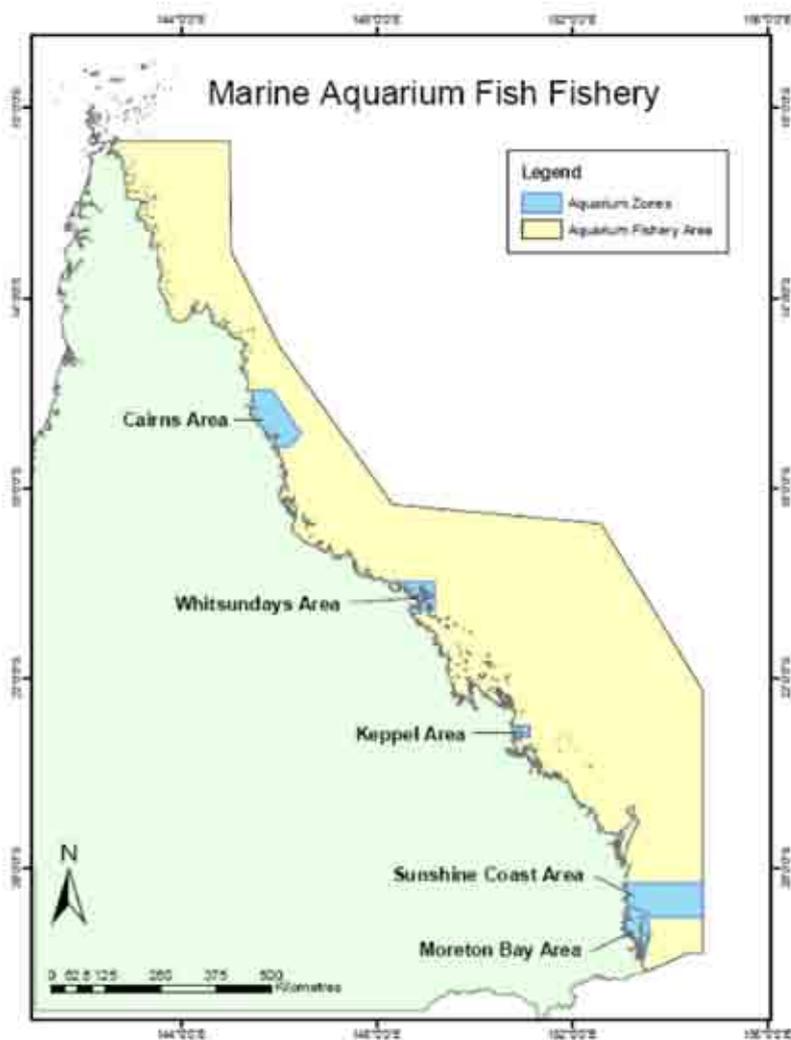
- Cairns area (16 licences)
- Whitsundays area (three licences)<sup>2</sup>
- Keppel area (eight licences)
- Sunshine Coast area (eight licences)
- Moreton Bay area (11 licences)

10. the Great Barrier Reef Marine Park Authority (GBRMPA) and the Queensland Department of Environment and Resource Management (DERM) also manage activities within declared marine parks through

- permits required for commercial collection
- areas closed to collecting (view GBRMPA zoning maps at [www.gbrmpa.gov.au](http://www.gbrmpa.gov.au); view DERM marine park zoning maps at [www.derm.qld.gov.au](http://www.derm.qld.gov.au)).

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<sup>2</sup> Under the GBRMPA Whitsundays Plan of Management (and consequently the joint GBRMPA/EPA marine parks permitting arrangements) access to this area is no longer available for any commercial collection of coral or marine aquarium fish specimens

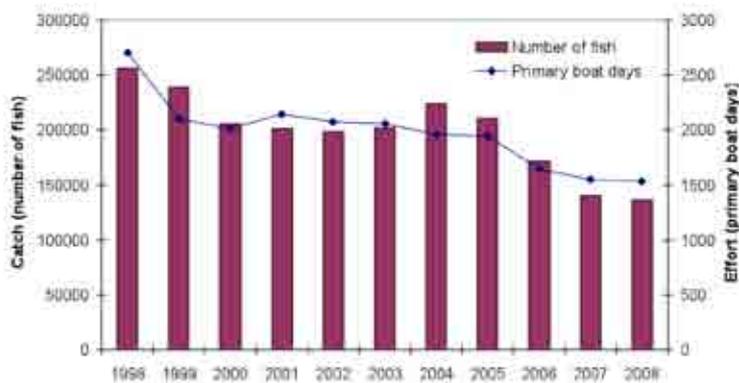


## Catch

Over the last 10 years, the MAFF has commercially collected between 130 000 and 260 000 fish per year, spread across more than 600 different species.

This quantity is small compared to the global aquarium trade of 20–24 million individuals annually (Wabnitz et al. 2003), because the MAFF's focus is on high quality and low quantity, which promotes both ecological and economic sustainability.

Fluctuations in the MAFF catch and effort over time have resulted from the weather dependence of the fishery and changes to management (e.g. access to certain areas).



# Queensland Coral Fishery (QCF)

The commercial QCF is based on the collection of a broad range of coral species, primarily in waters of the Great Barrier Reef.



## Target species

The key components of the fishery are:

- live aquarium corals
- corals for ornamental (non-living) use
- living rock (dead coral skeletons/fragments colonised with algae and other organisms).

Key target species are generally the small and vibrant varieties of live coral, mainly sold for use in personal (in-home) aquarium tanks. Live rock is also a major component of the fishery, used mainly as a solid base for small corals and anemones.

Structural (reef-building) corals are not a main focus of the fishery as they are generally unsuitable for use in small aquarium tanks. However, a small sector of the industry supplies certain larger varieties of coral for ornamental purposes.

## Methods

To obtain the desirable specimens, coral fishers collect from a range of depths and environments. Much of the coral taken in the fishery is sourced from depths of more than 10 m, often in areas between reefs. The targeting of deeper waters, areas between reefs and non-structural corals all combine to reduce impacts on the reef and interactions with other users of the reef (such as tourism operators).

The emphasis of the QCF is on quality rather than quantity, with pieces chosen selectively by hand for their size, shape and colour.

The QCF **does not use explosives.**

## Key management arrangements

QPIF has a number of regulations in place for the QCF under the Fisheries Regulation 2008, the *Policy for the management of the coral fishery* and licence conditions, including:

1. catch quota of 200 tonnes (t) per year, of which
  - 60 t is the limit for 'specialty corals'
  - 140 t is the limit for 'other corals', including live rock, coral rubble and ornamental corals
2. capped number of licences (currently 59)
3. limits of one boat and a limit of divers (currently under review) operating under a licence at a time
4. gear restrictions
  - collection by hand or with non-mechanical, hand-held instruments only
  - scuba and hookah (commercial fishery only)
5. area restrictions
  - collection limited to waters between latitudes 10°41' S and 24°30' S, except for two small collection areas south of latitude 24°30' S, which can each be accessed only by one or two licences
6. GBRMPA and DERM also manage activities within declared marine parks through
  - no recreational coral collection within marine parks
  - permits required for commercial collection
  - areas closed to collecting (view GBRMPA zoning maps at [www.gbrmpa.gov.au](http://www.gbrmpa.gov.au); view DERM marine park zoning maps at [www.derm.qld.gov.au](http://www.derm.qld.gov.au))

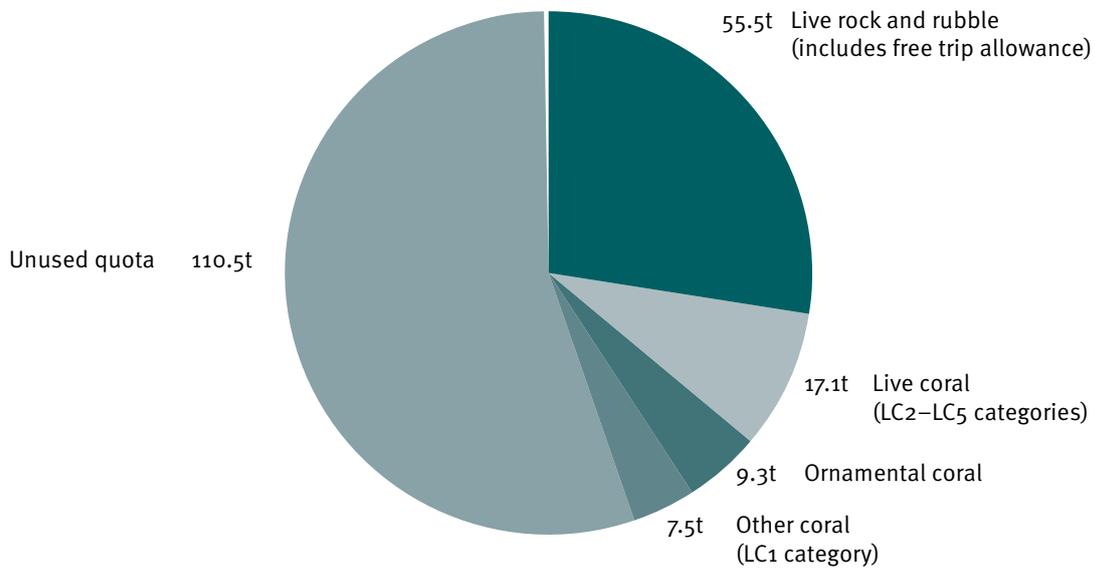
A Coral Stress Response Plan, developed cooperatively between QPIF, GBRMPA and industry, provides a non-legislative framework for the identification of coral bleaching events and the management of fishing activities to improve the resilience of the Great Barrier Reef environment.

The fishery response to bleaching events ranges from no changes to coral and aquarium fish collecting practices for a very minor event, to a cessation of commercial harvesting of coral and aquarium fish in impacted regions during extreme stress events. The Coral Stress Response Plan will improve the resilience and health of reef ecosystems by letting them recover from stress events, while allowing commercial fisheries to continue operating in a restricted capacity. View the Coral Stress Response Plan at [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) (click on 'Fisheries' > 'Commercial fisheries' > 'Queensland's commercial fisheries' > 'Collection fishery' > 'Coral Fishery' > 'Coral stress response plan for the coral and marine aquarium fish fisheries').

View the *Policy for the management of the coral fishery* at [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) (click on 'Fisheries' > 'Commercial fisheries' > 'Queensland's commercial fisheries' > 'Collection fishery' > 'Coral Fishery' > 'Policy for the Management of the Coral Fishery'). The performance measurement system (PMS) for the QCF provides the details of catch monitoring and control in high use areas. View the PMS at [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) (click on 'Fisheries', 'Monitoring our fisheries', 'Fisheries data & reports', 'Sustainability reporting', 'Performance measurement systems', 'Coral Fishery').

## Catch

The 200 t of quota permitted to be taken annually was taken as follows in the 2008–09 financial year (see the *Policy for the management of the coral fishery* for information about quota categories).



# Industry association and initiatives

## Pro-vision Reef Inc

Pro-vision Reef Inc is an association of licensed aquarium fish and coral collectors whose mission is to engender community and market confidence in the marine aquarium supply industry. It aims to achieve this through demonstrating highest standards of operational efficiency and environmental performance. The association represents about 90% of the active licensed operators in the MAFF and QCF (also representing around 90% of landed product) and provides a cohesive point of industry liaison for fishery and protected area managers. Pro-vision Reef Inc highlights the marketing and management-related advantages of its stewardship initiatives, including a Stewardship Action Plan (SAP; see next section), as incentives for remaining operators to join the association.

## Stewardship Action Plan (SAP)

An operational SAP has been developed by industry for industry, in collaboration with QPIF and GBRMPA. The SAP will ensure that licensed participants in the Queensland fisheries that supply the marine aquarium industry adhere to a uniform operational standard and that operators have clear contingency plans in place to respond to catastrophic events linked to global climate change.

The SAP ensures that Australia's international reputation for environmental performance remains strong and engenders community and market confidence in the Queensland marine aquarium supply industry.

The SAP represents a unique opportunity for co-management of these small but valuable fisheries. Its objectives are to:

1. describe 'best practice' collection standards in the MAFF and QCF
2. detail contingency operational plans for coral bleaching events and formalise linkages with response plans developed by fishery and protected areas managers
3. form a Complaints Assessment Committee to oversee the validity of complaints and severity of breaches
4. form a Review Committee to continuously improve the SAP.

The SAP carries a vision for 'best practice' aimed to differentiate (to the market and community) marine aquarium fish and corals collected sustainably in the Queensland fisheries from those collected elsewhere. It details collection strategies to minimise impacts on standing stock and recruitment. It also outlines methods for assessing collection sites under stress linked to global climate change and collection strategies for stressed environments, including self-imposing exclusion from some sites.

Operating in accordance with the SAP is compulsory for Pro-vision Reef Inc members, so operating in contravention to the SAP carries the risk of damaging an operator's reputation in the industry. Penalties for non-compliance can include expulsion from the industry association.

In parallel to implementation of the SAP is a proposed research project, which will be undertaken by world-class independent researchers. It aims to:

- quantify the extent and nature of current and projected collection activities (i.e. understand the dynamics of collection activity and the key drivers of collection patterns)
- quantify the ecological impacts of harvesting on coral reef populations and community structure (i.e. evaluate the extent to which harvesting may result in localised depletion of critical species and undermine reef resilience by reducing the capacity of local faunas to support key ecosystem processes)
- evaluate the impact of the trade on ecosystem processes, reef resilience and regeneration (i.e. Does collecting increase the risk of phase shifts through the collection of herbivores? Does collection reduce reef resilience and limit regeneration potential? Can a climate change–impacted Great Barrier Reef support the trade?)

It is expected that the research will guide the strategies articulated in the SAP such that the strategies are fully defensible. The project will enable incremental improvement in the SAP through annual review.

It is anticipated that, in time, these strategies will sustain robust scientific scrutiny and will form the basis for sustainable collection of aquarium specimens all over the world.

The SAP can be downloaded from [www.pro-visionreef.org](http://www.pro-visionreef.org)

## Environmental management system (EMS)

The SAP will be complemented by an EMS. The EMS will identify environmental risk through all aspects of maritime operations (including on-board compliance with the *Transport Operations (Marine Safety) Act 1994*; and in-water compliance with the SAP).

The EMS will establish individual benchmarks that can be improved upon and measured. It applies equally to all scales of operation, thereby enabling each participant an opportunity to contribute to the positioning of the fishery in the market and in the minds of the community. The EMS documents and records information in an industry recognised reporting format to facilitate ongoing internal review and periodic third party audit.

## Workplace health and safety

Pro-vision Reef Inc members are currently compiling an occupational dive code of practice that applies specifically to the MAFF and QCF and supplements workplace health and safety legislation. The dive code of practice will feature best practice in equipment choice and deployment and in situ animal husbandry, including the treatment of barotrauma.

## Assessments of sustainability and export requirements

Both the MAFF and QCF have been granted Wildlife Trade Operation (WTO) approvals under Part 13A of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC ACT). The WTO approvals:

1. acknowledge that the fisheries are being managed in an ecologically sustainable manner
2. allow the export of product caught in this fishery.

These WTO approvals come with a suite of recommendations and conditions, requiring QPIF to continually assess and report on the fisheries.

QPIF reports against these recommendations in an annual status report (ASR) prepared each year. View ASRs at [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) (click on 'Fisheries' > 'Monitoring our fisheries' > 'Fisheries data & reports' > 'Sustainability reporting' > 'Annual status reports').

All hard corals (Scleractinia), blue corals (Helioporidae), black corals (Antipathidae), fire corals (Milleporidae) and lace corals (Stylasteridae) are listed under Appendix II of CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna). International trade of these corals requires a non-detriment finding (NDF) and individual-shipment export permits are also required to ensure that all trade of CITES-listed product is monitored. The WTO approval under the EPBC Act provides the required NDF for the QCF.

Ecological risk assessments (ERAs) of the MAFF and the QCF conducted in 2007 determined the risks to the ecological sustainability of the target species in the fisheries. From the 600 species presently collected in the MAFF, only two species were identified at moderate risk, six species at low risk and the remainder scored negligible risk ratings. Eighty-nine of 100 taxa potentially taken in the QCF have negligible ecological risks and the remaining 11 species are subject to low ecological risks from the fishery.

These ratings were determined by panels of experts, incorporating information obtained through extensive reviews of published data on the biology and ecology of each species, catch and effort, management arrangements and fishery characteristics.

## Performance measurement system (PMS)

A PMS is a monitoring framework to measure a fishery's performance against ecological, economic and social management objectives. The PMS establishes acceptable ranges or limits indicating that each objective has been met. If data shows that the fishery has operated outside of these ranges or limits, further investigation is required and may result in changes to management.

PMSs have been developed for the MAFF and QCF and are reported against in ASRs. They include measures to identify changing catch trends overall and for particular species and particular localities to ensure sustainable use. The following table shows regional limits that apply to the QCF.

	Cairns	Keppel
<b>Live rock, rubble and attached corals</b>	80 t	24 t
<b>Corals of the Acroporidae and Pocilloporidae families</b>	5 t	1 t
<b>All other corals</b>	13 t	11 t

The finalised PMSs for Queensland fisheries can be found at [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) (click on 'Fisheries' > 'Monitoring our fisheries' > 'Fisheries data & reports' > 'Sustainability reporting' > 'Performance measurement systems').

## Wrap-up

The QCF and the MAFF are key examples of fisheries where management responsibilities are shared between government and industry. This creates a flexible approach to deal with a range of issues and events and ensure that the fisheries demonstrate the highest standards of operation and environmental performance.

## Disclaimer

This guide is not a precise statement of fisheries law and should not be relied on as a complete or accurate representation of the legislative requirements that apply to the MAFF and QCF fisheries. Regulations are changed intermittently and it is the responsibility of commercial and recreational fishers to ensure they are operating in accordance with current regulation.

It should also be noted that the operation of the MAFF and QCF fisheries may be subject to legislative requirements other than those that apply under the *Fisheries Act 1994*, such as state and Commonwealth marine parks legislation and local government requirements.

